Meeting on Issues Relating to the California Phase 3 Reformulated Gasoline Regulations

October 24, 2000

California Environmental Protection Agency

California Air Resources Board

Agenda

- Introduction
- Background
- ARB Staff's proposal
- Presentation from others

Items Addressed

- Denatured ethanol specifications
- Amendments to facilitate ethanol blending
  - CARBOB provisions
  - Tank transition requirements
- Small refiner provisions
  - Mechanism to mitigate any increase in emissions from the CaRFG3 small refiner provisions
- Other changes

Proposed Specifications for Denatured Ethanol and Denaturants

Property	Denatured Ethanol	Denaturant
Sulfur, ppm	10	--
Benzene, vol.%	0.05	1.1
Olefin, vol.%	0.50	10
Aromatics, vol.%	1.7	35
Other properties	ASTM D 4806	--

Denatured Ethanol Specifications

- Sulfur limit to be enforced by testing the denatured ethanol
- Benzene, olefins, and aromatics contents of the denaturant would be:
  - limited to the CaRFG3 cap limits
  - enforced by determining the concentrations in the denaturant and calculating the concentrations corresponding to the amount of denaturant added
- Requires product transfer documents with description of ethanol and denaturant

CARBOB Proposal Includes

- Amendments to CaRFG regulations to assure the practical blending of ethanol downstream of refinery and to facilitate the importation of gasoline.
- CARBOB model for certification of ethanol blends prior to the addition of ethanol
- Storage tanks transition

CARBOB Model

- Based on linear regression of refiners' dataset of CARBOB data and finished gasoline
- Would increase the flexibility for a refiner to produce complying CARBOB blends
- Could be used in place of hand blends
- Used in conjunction with the Predictive Model
- Model equations include RVP, T50, T90, and ethanol content

Terminal Tank Transitions

- Proposal would allow mixing of CARBOB intended for different ethanol contents without increasing emissions
- Adds flexibility in switching to different ethanol content
- Summer transitions between non-oxygenated gasoline and CARBOBs would be addressed through protocol with the Executive Officer

Summary of Recommendation for Tank Transitions

Transition From	Potential Effect	Conditions to Prevent Emissions Increases
CARBOB to CARBOB (increase oxygen <3%) or (decrease oxygen <3%)	NOx increase HC increase	1. Sulfur of target fuel to be no more than 12ppm for 1st tank turnover of the transition 2. Heel at terminal not to exceed 10% for each tank turnover during the transition
Non-Oxy to Oxy RFG or Oxy RFG to Non-Oxy	HC increase and likely RVP violation downstream of refinery	None known for summer. Allow transition during non-RVP season

Small Refiners

- Amendments to the ARB's diesel fuel regulations to incorporate a mechanism for small refiners to fully mitigate any increased emissions associated with CaRFG3 small refiner provisions

Summary of Small Refiner Options

① Reduce small refiner exempt volume, and make diesel available with less than 30 ppm sulfur

② Produce “cleaner” small refiner diesel with same exempt volume limit, forego right to produce diesel with greater than 500 ppm sulfur, and make diesel available with less than 30 ppm sulfur

③ Produce even “cleaner” small refiner diesel at 125% of volume limit, forego right to produce diesel with greater than 500 ppm sulfur, and make diesel available with less than 30 ppm sulfur

Summary of Other Proposed Changes

- Reproducibility of RVP test method using automated instruments
- Exemption for gasoline used in racing vehicles
- Winter oxygenates requirements at low-throughput stations
- Test method for determining oxygen, ethanol, and MTBE content
- Protocol for multiple averaging banks at refinery or import facility
- Gasoline sampling procedures

Reproducibility of RVP Test Method Using an Automated Instrument

- The staff propose to set repeatability values for automated vapor pressure test instruments to 0.084 psi for:
  - Model: CCA-VP (laboratory Grabner)
  - Model: CCA-VPS (portable Grabner)

Summary

- Staff proposal is follow-up to CaRFG3 adoption
  - Denatured ethanol specifications
  - Amendments to facilitate ethanol blending
  - Small refiner provisions
  - Other changes
- Staff Report released on September 29, 2000
- Board hearing on November 16, 2000